

## **ABSTRACT OF THE DISCLOSURE**

What is disclosed is a method for digital watermarking in a calibrated printing path and comprises: first receiving a pixel possessing color values from an input image; receiving a plurality of information bits to be encoded at a corresponding pixel in an output image. Then, one of at least two different GCR  
5 functions are selected where the selection is based on the state of the received information bits. The number of GCR functions to be selected from is dependent on the number of possible states of the information bits intended to be encoded at each image pixel and preferably equals the number of states of the information bits intended to be encoded at each image pixel such that the GCR  
10 spatially varies across the output image. Further, at least two GCR functions are optimized to carry information and information bits intended to be encoded within the output image are represented with a tag. CMYK values are then generated using the selected GCR function and the color values. These CMYK values are assigned to a corresponding pixel in the output image. The information bits to be  
15 encoded at a given pixel indicate the type of object to which that pixel belongs, such as: graphics, picture, text, line art, etc.. The output image, when printed, exhibits the property that substantially similar colors occurring at different spatial locations in the input image are produced with substantially different CMYK combinations in the print. Preferably, a parameterized function is used for the  
20 GCR function and the encoded state sets the parameter of the function. Information bits should be redundantly encoded throughout the output image. Regions that cannot be encoded by GCR information have to be compensated for. A reference mark is applied on the output image to indicate the starting point and order of the information sequence.